



The state of Eritrea

Ministry of Agriculture

Investment Potential in Agricultural Sector

Nov, 2012

1 - Agricultural Sector Growth Potential

1.1 Eritrea Major Agricultural Resources

Agriculture has been the cornerstone of the Eritrean economy in the past and is still the main source of income and food for more than 60 percent of the population. Eritrea has substantial and varied natural resources that can be developed to sustain socio-economic development. Generally, Eritrea possesses modest land and water resources. An estimated 2.1 million ha (17% of the total land area) is arable land suitable for crop and horticultural production. Of this, only 0.6 million hectare is suitable for irrigation, while 0.5% of the total land area is forest. The rest is very marginal and barren arid land, at best suitable for browsing and grazing. Currently, about 520,000 hectares are under rain-fed agriculture, while about 40,000 hectares are under full service irrigation, and about 63,000 hectares are under spate irrigation.

In the livestock sub-sector, there are about 4.7 million goats, 2.2 million sheep, 1.9 million cattle, 1.0 million poultry and 0.3 million camels. Although Eritrea's per capita holding of livestock is one of the highest in the world, livestock and dairy production have also largely remained traditional with extremely low productivity, due to poor genetic makeup, which is exasperated by disease, inadequate feed and water. Animals serve a number of purposes including as a source of food (meat, milk and milk products), manure and draft power, and also as a means of wealth accumulation. Overgrazing is common contributing factor to the degradation of land, loss of agro-biodiversity and desertification.

Based on topographic, climatic and agro-ecological factors, Eritrea can be divided into three distinct geographic development zones: the Central Highlands, the Western Lowlands and the Eastern Lowlands.

The Central Zone consist areas that are equal to and above 1,500 meters above sea level, which is relatively more densely populated. It represents 21% of Eritrea's total land areas and accounts for 66% of the national population. It has a reasonably good potential for intensified agricultural development. It gets high to moderate annual rainfall, averaging 450mm. Its temperate climate is conducive for the production of high value horticultural crops, agronomic crops and livestock production. The main rivers of the country, which drain both to the Western and Eastern Lowlands, originate in the Central Zone. The basins of these rivers are suitable for the development of supplementary and full service irrigation schemes for the production of high value agronomic and horticultural crops.

The Western Zone comprises areas below 1,500 meters above sea level laying to the west of the Central Zone. It represents around 37% of the total land area of the country and 21% of the national population. It has substantial potential for agricultural development. It possesses plenty of arable land and water resources that can be harnessed to develop economically viable agricultural schemes for agronomic, horticultural and livestock production. Moreover, Eritrea's four major seasonal rivers (Anseba, Gash, Barka and Setit) flow through this region and provide attractive

opportunities for the development of irrigated agricultural schemes. The Western Zone has also large areas with humid and moist climate that receive ample annual rainfall to develop rain fed agriculture for the production of a variety of crops. It has good prospects for rearing livestock for the production of beef, mutton and dairy products. Based on its overall potential, this zone can be considered as the bread basket of the country.

The Eastern Zone covers all areas below 1,500 meters above sea level east of the watershed of the eastern escarpment. It includes the coastal plains, the Eritrean islands and the waters in the Red Sea. It accounts for 41% of the country's land area but only 13% of the national population. Some areas of the escarpment receive relatively high annual precipitation varying from 700 to 1,100 mm. The northern and southern coastal lowlands and the islands, which in combination make up most of the Eastern Zone, receive annual precipitation of about 200 mm. In terms of agriculture, the region has potential for development of spate irrigation schemes along the basins of the rivers that flow from the escarpment to the eastern plains and eventually to the Red Sea. By properly harnessing and managing these flows, the Eastern Zone has potential for the production of high value agronomic and horticultural crops. The ports of Massawa and Assab, which are strategically located to serve as trading gateways for the Horn of Africa, are in this region.

1.2 Availability of Required Supporting Services

The Ministry of Agriculture (MoA) provides different technical services, such as advisory (extension), animal and plant health, regulatory, and research. The Ministry ensures the availability of agricultural inputs and farm equipment in order to assist development partners to develop their productive capacities. To achieve this MoA has branch offices that extend up to sub-zoba level. Furthermore, the ministry has training center that cater short term training for farmers and staff. There are also technical schools and agricultural college that provide courses from certificate to MSc level.

1.3 Main Constraints and Challenges

The most important constraints to agriculture development include:

1. Dependency on unreliable rainfall (temporal and spatial distribution);
2. Traditional labour intensive production system (low input - low output); and
3. Low productivity of the livestock sub-sector due to poor genetic quality and husbandry practices.
4. Degraded natural resources (land, water, forest etc.)
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2. Sector Vision and Strategy

2.1 Development Vision and Objectives

The vision of the agricultural sector is to “**promote modern and sustainable agriculture sector to induce quality and quantity of agricultural products for domestic and export**”.

The main objectives of the agricultural sector are;

- Achieving food and nutrition security.
- Raising income and generate rural employment.
- Supply raw material to domestic industries, thereby creating non-farm employment in agro-processing.
- Increase foreign exchange earnings through export.
- Revitalize forestry and wildlife resources

2.2 Development Policies and Strategies

The policy of the government of the state of Eritrea is to transform traditional farming system into modern irrigated commercial farming system and develop market-lead economy supported by a comprehensive array of government provided services such as, policy and strategic planning, research, extension, regulatory and human resource development. The private sector undertakes agricultural production, processing, marketing and other services.

The main strategies to develop the agricultural sector are:

- ◆ Promote irrigated and supplementary irrigated agriculture
- ◆ Promote the development of water harvesting and groundwater recharging schemes
- ◆ Increase agricultural productivity through **crop intensification, crop/ livestock diversification and crop livestock integration**
- ◆ Promote modern production technologies and effective farmers' advisory services
- ◆ Ensure the availability of farm support services and inputs
- ◆ Promote agro-processing, storage facilities and efficient post-harvest management
- ◆ Promote greater equity by enhancing gender participation, giving equal access to all kinds of assets and economic opportunities.

2.3 Government Actions Underway

Major government actions underway to develop the sector and support traditional farmers in rural areas are;

1. **Natural Resource Development and Management.** Develop plans to protect wildlife and forest resource, protect catchments by permanent and temporary closures augmented by reforestation, promote the use of multipurpose tree species and agroforestry, insure sustainable exploitation of forest products, provision of tree seedlings for reforestation activities
2. **Farmland leveling and consolidation:** Farmland leveling and consolidation of fragmented and degraded plots, to promote farm mechanization, moisture retention under rain-fed conditions, irrigation development and other cultural practices.
3. **Water harvesting and irrigation development:** this includes construction of dams and wells, improve small and large scale irrigation schemes, expansion of water efficient pressurised irrigation system, farm land water conservation
4. **Crop and Livestock Development:**
 - a. *Production of Strategic crops;* this includes the development of industrial crops, pulses and high value horticultural crops.
 - b. *Livestock Development:* This includes developing the traditional pastoral system, increase output through improved herd productivity and herd size, promoting superior animal breed and breeding system, efficient and sustainable rangeland development and management
5. **Farm mechanization and inputs;** facilitation of appropriate agricultural mechanization and modern farm technologies focusing on professionalization.
6. **Storage, processing and marketing:** Establishment of appropriate agro-processing and storage facilities including cold stores for horticultural products and milk, silos for grains, and maintaining of existing facilities.
7. **Institutional and human resource capacity building:** establishment of training institutions (Human resource development), farmers' advisory services at grassroots level (extension), effective and efficient research and regulatory services.

3. State of the Agricultural Sector

3.1 Existing Facilities and Services

In general, the agriculture production pattern shows low input-low output scenario. In the past 20 years, to change the situation and improve the performance and growth of the sector several facilities and service giving institutions have been established. To mention some;

- Water harvesting infrastructures (dams, ponds, diversions, wells etc.)
- Irrigation systems (spate, surface, drip, sprinkler)

- Modern farm machineries (tractors, planters, harvesters, threshers, bulldozers etc.)
- Agricultural college, technical schools and training centers (Hamelmallo, Hagaz Sawa, Villajo)
- Input supply and distribution
- Plant and animal laboratories
- Artificial Insemination (AI) facilities
- Animal health centers (at sub-zoba level)
- National hatchery and queen bee rearing centers
- National tree and fruit seedlings production nurseries
- Research stations and sub-stations representing the different agro-ecological zones
- Genetic resource conservation (gene bank)
- Seed cleaning facilities
- Regulatory services

3.2 Role of Public/Private Sector

Development of the agricultural sector can be achieved through support and involvement of the public and private sector. The ministry follows a strategy of stimulating the private sector rather than directly involving in productive activities itself. The core functions of the ministry are policy and strategic planning, research, advisory, regulatory and human resource development.

3.2.1 Facilities and Services to Be Retained in Public Sector

Services and activities that serve the general public (entail public safety) and require huge investment will be retained in the public sector. To develop the agricultural sector a comprehensive array of facilities and services such as policy and strategic planning, research, extension, regulatory, advisory, and training and education are currently under government control. Moreover, agricultural model centers like national poultry hatchery , queen bee rearing, national livestock breeding, agricultural laboratories, plant/ animal pests and diseases which have national, regional and international economic importance, conservation and development of agricultural genetic resources, national trees and fruits seedling production nurseries etc. will continue to be under public sector.

3.2.2 Facilities and Services to Be Transferred To the Private Sector

The policy and strategy of the government is to leave activities that can be handled efficiently to investors such as crop and livestock production, agro-processing, market (agricultural inputs and outputs) and consultancy services. Progressively the private sector will involve in the development of farm machinery, supply and distribution of agricultural inputs (e.g. fertilisers, agro-chemicals, farm equipment, vet drugs etc.), improved seed production and distribution, farm based health services (plant and animal), water harvesting and irrigation development services.

4. Further Investment Opportunities

There are several investment opportunities in the agricultural sector. Selected opportunities in the fields of crop and livestock production, Agro-processing and Marketing are listed below.

Cereal Crops Production (Grains, Pulses, Oil seeds)

In Eritrea cereals play major role in human nutrition. This includes the several staple foods, essential for food security on a national basis as well as individual households. By-products of cereal crops are also important as feed for livestock and poultry. Legumes and oil crops also serve as raw materials for local industries and as exportable commodities to substitute imported cereal crops. Yields in cereals vary widely according to rainfall and as a result of both the inability of small farmer's to afford essential inputs and their lack of application of modern production technologies. Commercialized production of cereals under irrigation system through the application of improved varieties and agricultural inputs can be a profitable business.

Horticulture Production

Horticultural crops can create valuable opportunity for investors to enter the export market. Vegetable crops are normally grown with two or three rotations each year and can yield a substantial income for commercial growers depending on the crops produced, technology used and number of rotations per year. Horticulture production are also among the most labor intensive of all agricultural enterprises and can easily generate more jobs on a per hectare basis than any other area of farm production. For these reasons, horticulture production can make a profitable sub-sector for investors and can be of major benefit to the national economy and the agribusiness itself.

Vegetables

Vegetable crops including hot and sweet pepper, artichoke, broccoli, eggplant, lettuce, tomatoes, carrots, potatoes, onions, okra, garlic and green beans have also good demand in rural and urban markets and are an important part of most Eritrean diets. Though smallholder farmers already account for a considerable share of total vegetable traded in Asmara and other major city's Market, these farmers lack basic facilities. Through development of new and properly regulated vegetable production facilities in conjunction with up-to-date technologies to achieve high level standards, investors can get very high returns and new opportunities for trade. Investments along these lines can provide a solid foundation for further expansion of the export industry.

High Value Export-oriented Vegetables

Export oriented investment in vegetable crops production can be focused on **high value** products like Asparagus, Cherry tomatoes, Broccoli, Cucumber, Endive, Sweet pepper, Green beans, Eggplant and others (coffee and tea). Even though such vegetables are not common in the local market they have high demand in the outside market. The main market opportunities for such vegetables, according to current trade patterns, are in Middle East, Sudan and other North Africa Nations. Other possible outlets can also exist in Asia and Europe with high quality products. However, such investment requires higher managerial skill and modern facilities like modern

greenhouse, automatic drip irrigation system with a fertigation unit, modern cold room and other necessary infrastructures to get a sustainable substantial return.

Fruits

Banana

The western lowland of Eritrea is very ideal for banana production. Though the current producers along the main rivers are supplying to the local market, with the application of modern production technologies large scale producers can get significant profit by exporting their products to neighboring countries. Depending on the scope of the operation and size of the plantation, banana plantations are one of the lucrative businesses for investors and are very important for promoting national economy. This is mainly due to its potential to deliver relatively quick return, provide weekly income year round and the ability of the plant to recover quickly from natural disasters.

Citrus

Citrus plants include Lemon, Orange, Mandarin and Grape fruits. Citrus plants perform better under full irrigation scheme. In Eritrea, areas such as Elabered, Mai-aini, Mai-habar, Ghinda, Ala Plains, Solomuna, Keren, Tekreret, Binbina and their vicinities are very conducive for Citrus plantations. Farmers in these areas make a positive contribution in satisfying internal demands for citrus fruits. Nonetheless, more can be produced to enter into the export market by introducing high yielding varieties, fertilizers, efficient irrigation system, integrated pest management techniques and proper management citrus plantation.

Date Palm

Date palm tree grows well and give high return, where climatic conditions are relatively hot and dry. Eastern lowland of Eritrea exhibits a suitable climatic and soil condition (sandy loam) for date palm production. In Eritrea few initiations have been done to produce date palm in She'ba, Gahtelay, Dogoli and Southern Red Sea. Production of dates is well known industry and its product is marketed all over the world as a high-value sweet fruit crop, especially in North Africa and Middle East. Thus, there is an immense potential and viability in investing in this commodity.

Other Important Cash crops

Cotton

In the commercial scale, Cotton started to grow in Eritrea during Italian era. It was planted in western and eastern lowlands. The climate and soil of Eritrea can be good opportunity for investment on the crop. In Eritrea, cotton can only be cultivated under irrigation. The demand for cotton is still high as an input for garment and fabric industries locally and internationally.

Strawberry

Climate and soils in the highlands of Eritrea provides an ideal growing condition for strawberry production. Several small scale trial farms showed that strawberry production can be one of the rewarding businesses. However, in large scale it requires capital intensive investments.

Cut Flowers

Climate and soils in the highlands of Eritrea provide an ideal growing condition for several commercial flowers particularly rose. Growing cut flowers is a very profitable business if done properly in a commercial way. Demand for cut flowers, especially roses, is growing tremendously locally and internationally. Products from a cut flower company can be sold to local retailers and can be wholesaled to foreign countries.

Cut flower industries are at infancy stage in Eritrea. Currently few commercial cut flower growers are functioning and producing roses for export. Located in the Horn of Africa, Eritrea is at the crossroads between Africa, the Middle East and Europe. This geographical proximity provides immense opportunity for exporters of floricultural products.

Livestock Production

In Eritrea, despite the large livestock population, the livestock sub-sector is dominated by small-scale traditional producers and consists primarily of cattle, small ruminants (goats and sheep) and poultry. The impacts on the overall economy of small scale producers is very small and are not able to enter into the export market because they lack modern production techniques to fulfill the required standards of quality and hygiene. Nevertheless, there is a substantial national market for poultry, beef and milk products.

Milk

Though production of milk in a modern way was started during the Italian colonial period by introducing Holstein cows from abroad, currently, there are few dairy cows. From 1992 -2011 number of dairy cattle and milk production has increased by 136.3% and 74.8% respectively. However, due to increasing demand for milk there is shortage of pasteurized milk in some major cities. Therefore, there is much focus on satisfying domestic demand first before giving much emphasis to export production. Nevertheless, considering the suitable climate for dairy cattle there is a potential for long term viable investment of exporting high standard long-life milk to neighboring nations if large milk processing plants with high tech are established.

Meat

In Eritrea beef production is mainly from small scale pastoralists who are the main suppliers for the domestic market. The wide spreading style of livestock rearing is in open grazing system which supply to almost all domestic market. However, such farmers produce poorer quality product than commercial farmers having modern feedlots. There are potential export markets for Eritrean beef which can be exploited in the Middle East, Northern Africa and other regional markets.

Poultry (egg and meat)

Poultry industry, consisting of broiler chickens and egg production, is also another potential area for investment. There are some commercial farmers in poultry sector which play a noticeable role in fulfilling demands for egg. They have also a positive contribution in providing chicks of selected breed for small scale farmers.

Export of Poultry products is highly controlled due to occurrences of contagious diseases. This can be an incentive for investing locally where there are no outside competitors. However, such investments depend on the existence of feeds and veterinary services. Comparing to egg production commercialized broiler chicken production is at its infancy. Thus, investing in chicken meat can be a profitable area for investors.

Honey

Traditional Bee keeping activities has been practiced in Eritrea since long time. However, the modern way is not yet a widespread practice in the potential areas.

Economic value of Honey production is high. Hence it is a good trade commodity. Honey has high demand locally as well as internationally. It can be directly consumed, used as sweetener for food and drinks, applied in making of several beverages and also has a medical value. Honey can be preserved for long time without being spoiled. Honey production largely depends on climate, vegetation, bee species and technologies applied. Highlands and midlands of Eritrea are ideal places for honey production. Beside from honey, wax is another product of beekeeping activity. Wax is used in the manufacture of cosmetics, candles, foundation sheets for hives, medicines, polishes, and so many others. Depending on the quality, bee wax can generate good income to investors. Especially, if value adding is made by packaging it properly.

Agro-processing (Value Addition)

Eritrea has huge potential for investment in the agro-processing sector. It encompasses strategic processing industries that are potentially high value-added export in cereals, horticultural and livestock products. This includes tomato paste, cactus fruit jam, aloe-vera products, fruit juice, peanut butter, processed honey, processed milk products like cheese, yoghurt and animal feed processing. There is also huge potential in textile, garment and leather processing. The existence of abundant natural resources, relatively cheap labor and strategic location of the country to access the Middle East and other potential market areas makes the agro-processing sector an opportunity for export based investors.

Marketing

As production in the agricultural sector grows, marketing of agricultural products and inputs became an opportunity for investment. Generally there is a limitation in transporting live animals and horticultural products from area of production to markets. There is also difficulty of maintaining the quality of horticultural crops due to lack of proper storage facilities. This shows that investors can play major role in providing transporting and storage facilities. There is also a huge potential in selling several plant and animal products to local and external markets especially in neighbouring countries and Middle East. Another potential area of marketing is supply of agricultural inputs. This includes fertilisers, agrochemicals, vet drugs and vaccines, improved seeds and equipment and tools.

Indicative Project Profile Matrixes

Project Status	Production type/Services	Potential Areas
Cereal crop production	Wheat, maize, beans, ground nuts, sorghum, sesame , multi barley production	<ul style="list-style-type: none"> ◆ Wheat, chick pea, malt burley (highlands), ◆ maize (highlands and eastern lowlands) ◆ sesame, sorghum ,groundnuts (western lowlands)
Vegetable Crop Production	Assorted Vegetable (hot pepper, tomatoes, carrots, potatoes, onions and green beans etc.)	<ul style="list-style-type: none"> ◆ Carrot, potato green beans (highlands), ◆ hot paper, tomato, onion (western and eastern lowlands)
Cotton production	Cotton production	Lowlands
Banana Production	Banana production	Lowlands
Citrus fruit Production	Orange, Mandarin, Lemmon Grape fruits production	Midlands
Date palm Production	Date production	Eastern lowland
Milk Production	Dairy cows	Western lowlands and midlands and highlands
Meat Production	Beef, lamb, mutton production	Western lowlands and high lands
Poultry Production	Chicken and egg production	Lowlands, Midlands, highlands
Honey Production	Honey production	Midlands and highlands
High value vegetable production under greenhouse and tunnels	Asparagus, Broccoli, Cucumber, Endive, Green beans, Sweet pepper, Eggplant and others.	<ul style="list-style-type: none"> ◆ Asparagus, Broccoli, Cucumber, Endive, Green beans (Highlands and midlands) ◆ Sweet pepper, Eggplant (lowlands)
Cherry tomato production under greenhouse and tunnels	Cherry tomato production	Highlands and midlands
Flower production under greenhouse and tunnels	Rose flower production	Highlands and midlands
Strawberry Production under greenhouse and tunnels	strawberry production under green house and tunnels	Highlands
Agro processing plant	<ul style="list-style-type: none"> ◆ Fruit Juices; tomato paste, cactus fruit jam; peanut butter; oil processing; ◆ honey processing; milk processing; ◆ textile, garment, leather processing; gum-arabic processing, aloe vera products; 	Depending on the availability and vicinity of raw materials
Marketing	<ul style="list-style-type: none"> ◆ Transporting live animals and crop products; ◆ storage facility for crop and livestock ; ◆ Marketing of agricultural supplies and product; 	Major agricultural potential areas, cities and ports

5. Requirements and Procedures

Eritrean Investment Centre is an entry - exit point for investment application, registration and permit. Investors will be required to submit a business plan to MoA. The investment promotion office in the ministry of Agriculture will facilitate and follow up investment processes and procedures. The office will forward technical report on the investor's business plan to the investment center for appropriate action.

6. Concluding Remarks

To promote investment in the agriculture sector the government will avail appropriate land for different agri-business in different agro-ecological zones.

Investment in agriculture can be a lucrative as well as risky business. To avoid risk and maximising profit, investors should prepare their feasibility study (**whole farm planning**) based on the right information and field analysis. Production can only be lifted up with the use of proper technology and efficient implementation of business plans through the participation of competent human resource. Efficient management is another area that requires attention in the establishment of farm business. Therefore placement of the right expert in the right production area should be considered. Development of basic infrastructure and application of proper production, processing and marketing technologies should be given prior focus.